Course Specification

(3103 System Design)

Faculty:	*HICIT- **Higher Institute for Computers & Information Technology**-El Shorouk Academy*
Programme(s) on which the course is given:	Under graduate program in Computer Science
Major or minor element of programme:	Compulsory
Department offering the programme	Department of Computer Science
Department offering the course:	Department of Computer Science
Year / Class	3rd Year – 1st semester
Date of specification approval	1/8/2022

A- Basic Information

Title: System Design	***Code:*** 3103		
Weekly Hours:			
Lecture : 3	**Exercise: -**	**Practical :**3	**Total:** 6

B- Professional Information

1 - Course Aims:

The objective of CS3103 is to give the student the knowledge and practice of how to design the various components of any system, to define the implementation wise aspects of this system.

After completing this course, the student should be able to:

- conduct system design process
- design system components, including system inputs, system outputs, system interfaces, system databases, system programs, and finally be able to document the system design results.

2- Program ILOs Covered by Course

Program Intended Learning Outcomes			
Knowledge and understanding	**Intellectual Skills**	**Professional and practical skills**	**General and Transferable skills**
A9, A11, A13, A15, A21	**B2, B4, B5, B6, B8, B12, B17**	**C5, C6, C9, C13, C15, C19**	**D1, D2, D5, D9, D10, D12**

3- Intended learning outcomes of course (ILOs)

a- Knowledge and understanding:

a1. Define the various components of the system design, and the definition of the system technical architecture. [A9, A11]

a2. Identify the meaning and guidelines needed to design inputs, outputs, interfaces, databases, system module's and system programs. [A13, A15]
a3. Describe the component's design in a standard documentation. [A21]

b- Intellectual skills

b1. Illustrate the existing technical difficulty, in the current system, tending to redesigning it. [B2, B4, B5, B6, B8]
b2. Analyze the overall system components under the system architecture. [B4, B5, B6, B8, B12, B17]

c- Professional and practical skills

c1. Design a systems component.[C5 ,C9 , C13,C15 ,C19]
c2. Practice the technical data which are collected from system owners and system users for the needed design.[C6 ,C9,C13 ,C15 ,C19]

D- General and transferable skills

d1. Communicate with system owners to gather the required information.[D1 ,D5 ,D9 ,D10 ,D12]
d2. Work with a team to implement a system and write technical report[D1 ,D2 ,D5 ,D9 ,D10 ,D12]

3 -Contents

Topic	No. of Hours	Lectures	Tutorial /Practical
Introduction to system design and construction.	12	6	6
System architecture.	12	6	6
Input design.	12	6	6
Output design.	6	3	3
Interface design.	12	6	6
Database design.	12	6	6
Program design.	9	3	6
Selected Topics	3	3	-
Course Project.	6	3	3

4 -Teaching and learning methods

Teaching and learning methods	Used
Active Learning	
Lectures	√
Tutorial Exercises	√

Practical Lab	√
Exercises	-
Discussions.	√
Self – Learning strategy	
Reading material	√
Websites search	-
Research and reporting	-
Self-studies	-
Experimental strategy	
Group work	√
Presentation	-
Problem solving strategy	
Problem solving/problem solving learning based	-
Case study	√
Synchronous E-Learning	
Virtual lab	-
Virtual class	-
Chat Room	-
Video lectures	-
Asynchronous E-Learning	
E-Learning	√

5 -Student assessment methods

Methods	**Assessment**	**Used**
Electronic Midterm Exam	To assess the knowledge and understanding achieved by the student during the previous weeks. (Online on e-learning hub)	√
Pencil-to-Paper Final Exam	To evaluate what the student gain at the end of the course, and to assess: the knowledge and understanding, general skills, and intellectual skills.	√
Course Project	To allow students work in team, and to evaluate knowledge, understanding, intellectual, and transferable skills.	√
Course Work & Quizzes	To keep the student always in the course, and to evaluate knowledge, understanding, intellectual, and transferable skills.	√
Practical Exam	to measure the ability of students to design and implement a software program (FTF).	-
Participation	To assess the knowledge and understanding achieved by the student during the previous weeks.	√

Assessment Schedule

Assessment	Week #
Participation	**3-14**
Electronic Mid Term Exam	**8**
Final Exam	**16**
Course Project	**3-14**
Course Work &Quizzes	**2-14**

Assessment Weight

Assessment	Weigh %
Participation	**5%**
Mid Term Exam	
Final Exam	**80%**
Course Project	**10%**
Course Work &Quizzes	**5%**
Total	**100**

- Course Work &Quizzes:
  - Short Exams, Assignments, Researches, Reports, Presentations on e-learning hub
  - Class/Project discussion in a virtual classroom

6 -List of references

Essential books (text books)	• Dennis, Alan, et al. *Systems Analysis and Design: An Object-Oriented Approach With UML*. 2020. • Kendall, Kenneth, and Julie Kendall. *Systems Analysis and Design*. 2020.
Recommended books	• Valacich, Joseph, et al. *Modern Systems Analysis and Design*. 2020.
Periodicals, website	• http://www.cs.cmu.edu/afs/cs.cmu.edu/project/vit/www/paper_abstracts/UniCon.html

7- Required Facilities

To assess professional and practical skills given the following facilities:

a. Tools & SW (Technologies facilities):
   - **Microsoft Visual Studio 2019**
   - **MS Power Point SW Package for presentation**
   - **portal (MOODLE) electronic midterm exam**

b. Teaching facilities:

	Lecture	*class*	*Lab*
Whiteboard	used	-	used
Pc/laptop	used	-	used
Data show	used	-	used
Webinars	-	-	-
Social Media	Facebook Page for 3rd year	-	Facebook Page for 3rd year
Chat Room	-	-	-
Videos	-	-	-
Website	-	-	-

8-Course Matrices

8.1 Course Content/ILO Matrix

Course Contents	Knowledge and understanding			Intellectual skills		Professional and practical skills		General	
	a1	a2	a3	b1	b2	c1	c2	d1	d2
Introduction to system design	√	√							
System Technical Architecture.	√	√	√	√	√	√	√		
Input Design.	√		√	√	√	√	√		
Output Design.	√		√	√	√	√	√		
Interface Design.	√		√	√	√	√	√		
Database Design.	√		√	√	√	√	√		
Program Design.	√		√	√	√	√	√		
Selected Topics	√		√	√	√	√	√		
Course Project								√	√

8.2 Learning Method /ILO Matrix

Learning Methods	Knowledge and understanding			Intellectual skills		Professional and practical skills			General	
	a1	a2	a3	b1	b2	c1	c2	c3	d1	d2
Lectures	√	√	√	√	√	√	√	√		
Tutorial Exercises				√	√	√	√	√		
Reading material	√	√	√	√	√	√	√	√		
Websites search										
Research and reporting										
Problem solving/problem solving learning based										

Group work						√	√	√	√	√
Presentations										
Practical Lab				√	√	√	√	√		
Discussions.				√	√	√	√	√	√	√

8.3Assessment Methods /ILO Matrix

Learning Methods	Knowledge and understanding			Intellectual skills		Professional and practical skills			General	
	a1	a2	a3	b1	b2	c1	c2	c3	d1	d2
Electronic Mid Term Exam	x	x	x	x	x					
Final Exam	x	x	x	x	x					
Course Project	x	x	x	x	x	x	x	x	x	x
Course Work &Quizzes	x	x	x	x	x	x	x	x	x	x
Practical Exam										

9. Course ILOs Vs Program ILOs

Prog ILOs / Course ILOs		Knowledge and understanding					Intellectual skills							Professional and practical skills						General					
		A9	A11	A13	A15	A21	B2	B4	B5	B6	B8	B12	B17	C5	C6	C9	C13	C15	C19	D1	D2	D5	D9	D10	D12
k&u	a1 a2 a3	√	√	√	√	√																			
int.	b1 b2						√	√ √	√ √	√ √	√ √	√	√												
p. &p.	c1 c2 c3													√	√	√ √	√ √	√ √	√ √						
general	d1 d2																			√ √	√	√ √	√ √	√ √	√ √

Course coordinator: Dr. Magdy E. Elhennawy ( )
Head of Department: Dr. Ahmed El-Abbassy ( )
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